Minutes
Sludge Stakeholders Group Meeting
July 22, 2014

I & II. Welcome and Group Introductions - Bob Minicucci introduced himself as facilitator for the day's meeting, filling in for Carolyn Russell who was required to attend another meeting for an initiative proposed by the Governor. Since there were several new faces in the group, Bob had everyone introduce themselves and identify their first "paying" job. It is interesting to note that babysitting and apple picking were the predominant early career choices.

III. Re-Engage – Bob started the discussion by reminding the group of the rules of engagement (respectful, mindful of time, and open-minded communication) agreed upon at the first meeting on July 8th. Revisions and additions to the goals identified at the first meeting were solicited, but no changes were offered. Changes to the July 8th minutes were requested, but the group found the minutes acceptable. A short review of the list of topic proposed for discussion confirmed that the major topics had been identified and that the proposed organization for the upcoming discussion was acceptable.

IV. NRCS Nutrient Risk Assessment – Brandon Smith, NH NRCS

NRCS provides financial and technical assistance for a variety management practices to prevent erosion and protect water quality. Farms accepting financial assistance for waste management practices must commit to implementation of a nutrient management plan for three years. The NRCS 590 Standard provides the guidelines for nutrient management. The requirements for spreading setbacks, soil testing, and N & P risk assessment were discussed. Nitrogen risk is assessed using the Nitrogen Leaching Index. The N Leaching Index identifies soils which are a high risk for leaching of nitrogen into groundwater and outlines BMPs to manage leaching risk. Calculation of the N Leaching Index was discussed along with interpretation of the results. Phosphorus risk was the next nutrient management issue highlighted. Phosphorus transport is mostly likely to impact surface water quality as a result of soil erosion and/or runoff. A Phosphorus Index adapted from Penn State P Index has been developed to assess risk from P transport. The various factors (source factors, transport factors, RUSLE2, etc.) included in the P Index calculation were identified. P Index results were discussed as well as management practices needed to ameliorate phosphorus transport to surface water from soils with excessive levels of soil test P. A spreadsheet for calculating P Index was introduced and used to demonstrate how various factors can affect P Index.

V. DES Sludge Quality Data – Mike Rainey, NH DES

NH Sludge Management Rules emphasize sludge quality as the primary means of protecting public health and the environment from the potential risks associated with the sludge land application. A brief background on sludge testing requirements was presented. Testing requirements imposed upon generators by state regulation, Env-Wq 800 were distinguished from testing and inspection requirements delegated to DES by the Legislature (HB-648). Generators who propose to land apply their sludge in NH must receive sludge quality certification (SQC). The testing and reporting requirements to obtain and maintain SQC were summarized. DES implementation of the testing and reporting requirements of HB-648 was also described. The

distinction between the two testing programs has resulted in two different data sets which have been organized, analyzed, and reported differently. The SQC data is organized and analyzed by generator. Copies of Concord's Annual Report and History Report were handed out as examples. The HB-648 data is organized as an annual assessment of sludge quality in New Hampshire with little reference to specific generators. An abridged copy of the annual HB-648 report was provided as an example. The presentation concluded with an evaluation of the HB-648 data for the years 2001 through 2013 inclusive. The data were analyzed according to analytical method (VOC, SVOC, metals, pesticides, PCB and dioxins). The data suggest the following conclusions:

1. Sludge/Biosolids contain contaminants which will on occasion violate standards and exceed screening standards,
2. Some violations result from handling issues/inadequate treatment (phenols/ketones),
3. Some violations may result from sampling or lab issues (matrix inference, analytical protocols, low solids/high water content), and
4. Monitoring should continue with potential re-evaluation of the analyte list.

VI. How to Get Other Information/Input Needed?

Bob M. asked what additional input from outside the groups was needed and from whom should that input come. Significant discussion had already centered on reducing the regulatory burden of the current sludge rules. However, the opinion of activists opposed to land application of biosolids had not been heard during these proceedings. NH Conservation Law Foundation had been invited to participate to fill this role, but has not been able to send a representative. Some suggestions for receiving more and different input included:

1) Prior to initiating rulemaking, hold public listening sessions in different locations around the state,
2) Contact the Legislature through the legislative calendar or via particularly relevant House committees (E&A, Municipal & County Gov.) about upcoming sludge rulemaking,
3) Use existing DES sponsored groups (LACs, Shoreland Advisory Comm., etc.) to solicit input on the Rules,

Tom Nerforas offered to host a tour of the Concord Hall Street Wastewater Facility for those who wished to have a better understanding of how wastewater and sludge are treated.

The issue of sludge management economics was raised and who could provide relevant information. Andrew Carpenter offered to provide information on a project with which he was involved. The project utilized a model that performed a cost-benefit analysis comparing sludge management options. Shelagh Connelly mentioned that Vermont DEC is currently adopting new sludge regulations and has performed some type of economic analysis. EPA and NEIWPCC were also considered potential sources for economic information. DES committed to exploring potential information sources pertaining to this issue.

VII. **Defining Standards and Requirements to Protect Human Health and the Environment**
Bob M. indicated the pursuing discussions should proceed at a general level as opposed to technical specifics, looking to achieve the "most desired, if I were king/queen" outcome. Further, as options addressing each topic were identified, both pro and cons should be considered.

Risk Basis – It was suggested for the contaminant standards derived by risk assessment that the assumptions and risk scenarios used to develop standards be re-evaluated and potentially updated. Dennis Pinski, supervisor of the Health Risk Assessment Section, commented that a re-evaluation of sludge risk-based standards would probably not result in significant changes and that risk *management* would be a preferred option for dealing with concerns about standards. DES uses screening standards to regulate the concentration of VOC, SVOC, pesticide, PCB, total cyanide and four metals in land applied sludge. Additional information on DES screening standards, including their derivation and application, was requested. A concern was raised regarding the number of analytes and frequency of testing required by SQC given that many analytes have not been detected in sludge. Consideration should be given to reducing and revising the target analyte list.

Application Rates/Loading Rates – The management of phosphorus in land applied sludge needs to be considered for addition to the rules. Management requirements should be comparable for all organic nutrient sources. The current rules require the use of the "Best Management Practices: Biosolids" (BMP) published by UNH Cooperative Extension in 1995 to calculate application rates, but allows exemptions based on specific sludge data and/or site-specific crop yield data reviewed by a qualified professional. The requirement in the BMP to credit nitrogen for past biosolids/manure application and organic matter was considered was by some stakeholders to be double counting a potential nutrient source. DES indicated that Carl Majewski of UNH Cooperative Extension has recently updated the BMP.

Questions were raised regarding DES requirement to tracking cumulative metals loading for sludge that has certified as "low metals". Metals testing of soil receiving land application have sometimes indicated large increases in metals concentrations following land application. However, the soils testing have produced highly variable soil concentration results which suggest that the variability may derive from sampling and testing methods rather than actual changes in metals concentrations. It was suggested that cumulative loading and soil testing requirements be reviewed.

Sludge Quality Certification – Concerned was expressed that the scope and frequency of DES sludge testing requirements was excessive especially for contaminants not found in sludge. Also, testing frequency was not proportional to the size of the generator and the amount of sludge produced as in the federal regulations. The testing requirements are the same for all residuals regardless of their source and characteristics. It was suggested that testing and management requirements should be based on the type or sludge and its characteristics (nutrients, pathogens, contaminants, etc.). DES should review its list of analytes and consider dropping some testing requirements and adding others.

Protection of Water Resources – The high cost of groundwater monitoring required for the use of sludge to reclaim disturbed areas such as gravel pit precludes of use of sludge for reclamation projects in New Hampshire. The water quality data associated with the use of sludge in landfill capping systems has demonstrated that sludge can be effectively used to establish vegetation without impacting local water resources. NRCS was discussed as a resource for issues such as control of stormwater run-off, efficacy of setbacks, and affordable erosion control.

Other issues – DES was encouraged to revise the Rules to be more flexible and that allow creativity in sludge management projects. Rules should focus on sludge quality and characteristics with management requirements that are appropriate to the material. The provision in the Rules for waivers was discussed as a potential tool to incorporate regulatory flexibility. Also, the potential for performance standards and R&D projects was raised.

Next Steps

1) A tour of Concord's Hall Street Wastewater Facility was offered for August 26th for those who are interested.
2) DES agreed to convene a subcommittee on nutrient management that would be self-selected.
3) DES agreed to prepare a conceptual proposal for changes to the SQC process that would allow for testing and management based on the type and characteristics of the sludge.